

ABSTRACT OF THE DISCLOSURE

A vector modulator is disclosed which includes a first amplitude invariant phase shifter for shifting a phase of a received signal at fixed intervals within a preset first shifting range and a quadrature hybrid coupler for separating an output of the first amplitude invariant phase shifter into at least two different channel signals having a 90° phase difference to each other. A second amplitude invariant phase shifter shifts a phase of a first channel signal among outputs of the quadrature hybrid coupler by a fixed amplitude within a prescribed second shifting range and a third amplitude invariant phase shifter shifts a phase of a second channel signal among outputs of the quadrature hybrid coupler by a fixed amplitude within a prescribed third shifting range. A combiner receives signals from the second and third invariant phase shifters and calculates a vector sum, allowing for a vector of a modulated signal on all regions of a polar coordinate system by expanding a range of variation of a received RF signal.